

## Abstract

The present invention relates to an interferometric measuring device for recording the shape, the roughness or the clearance distance of the surface of a measured object (8), having a modulating interferometer (2), to which is supplied short-coherent radiation by a radiation source (1), and which has a first beam splitter (2.3) for splitting the radiation supplied into a first beam component (2.1) guided via a first arm, and into a second beam component (2.1') guided via a second arm, of which the one is shifted with respect to the other, with the aid of a modulating device (2.2, 2.2') in its light phase or light frequency, and passes through a delay line (2.9'), and which are subsequently combined at an additional beam splitter (2.10) of the modulating interferometer (2), having a measuring probe (3) that is spatially separated from the modulating interferometer (2) and is coupled to it or able to be coupled to it via a light-conducting fiber set-up (6), in which the combined beam components are split into a measuring beam guided to the surface by a probe-optical fiber unit (3.1, 3.2) having a slantwise exit surface (3.4) on the object side and a reference beam, and in which the measuring beam ( $r_1(t)$ ) reflected at the surface and the reference beam ( $r_2(t)$ ) reflected at a reference plane are superposed, and having a receiver device (4) and an evaluating unit (5) for converting the radiation supplied to it into electrical signals and for evaluating the signals on the basis of a phase difference, An accurate surface measurement is favored by the angle of inclination ( $\gamma$ ) of the exit surface (3.4) to the normal of the optical probe axis (3.5) amounting to at least  $46^\circ$ . (Fig. 4)